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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/718,697

11/24/2003

Yoshihiko Taira

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12/09/2005

OLIFF & BERRIDGE, PLC  
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EXAMINER

PHAM, HAI CHI

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 12/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/718,697

Applicant(s)

TAIRA ET AL.

Examiner

Hai C. Pham

Art Unit

2861.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## **FINAL REJECTION**

### ***Response to Amendment***

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### ***Claim Objections***

2. Claims 4 and 5 are objected to because of the following informalities:

#### **Claim 4:**

- Line 5, "including a joint of the light-emitting chips" should read --including light-emitting elements at a joint of the light-emitting chips--.

#### **Claim 5:**

- Line 5, "including a joint of the light-emitting chips" should read --including light-emitting elements at a joint of the light-emitting chips--.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ng et al. (U.S. 5,586,055) in view of Shimizu et al. (U.S. 6,064,418).

Ng et al. discloses a non-uniformity correction of a print head, which comprises an LED element array composed of a plurality of LED chips having a predetermined number of LED elements arranged in a row, wherein the light intensity of the LED elements are measured and the gap width (gw) between LEDs located at ends of the LED arrays are determined and compared to the pitch (P) of the LED elements within the arrays so as to calculate an adjusted intensity of the light beams emitted from the LEDs located at the ends of the LED arrays, and wherein the intensity of the light beams emitted from the LEDs located at the ends of the LED arrays are increased or decreased when the gap width of the end LEDs is larger or smaller than the pitch of the LED elements, respectively (col. 8, line 51 to col. 9, line 4).

Although Ng et al. further teaches measuring the intensity of each LED element including the end LED elements and calculating the gap width and the pitch of the LED arrays based on the optical power centroid (i.e., light intensity peak) of each LED element instead of the physical mark representing the center of each of the LED elements (col. 9, lines 31-35), but Ng et al. fails to explicitly determining the beam profiles of the plural LED elements or the slicing of the beam profiles.

Shimizu et al. discloses an LED array print head having comprises an LED element array composed of a plurality of LED chips having a predetermined number of LED elements arranged in a row, wherein the spacing (Pch) between the end LEDs of adjacent LED chips and the pitch (P) of the LED arrays are determined based on the

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light intensity profile of the LED arrays (light intensity profile T when the spacing Pch is greater than the pitch P and light intensity profile U when the spacing Pch is smaller than the pitch P) (Figs. 18A-18B), the distance between the peaks of the light intensity profile representing either the spacing Pch or the pitch P. In this case, the median point of the sliced plane of the light intensity profile taken at a predetermined level is at the peak position of the light intensity profile.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to incorporate the step of determining the light intensity profile of the LED arrays in the measurement of the spacing between adjacent LED elements in the device of Ng et al. so as to select the peaks of the light intensity profile as reference points for determining the abovementioned spacing as taught by Shimizu et al. since both Ng et al. and Shimizu et al. suggest to use the peaks of the light intensity of the LEDs to measure their spacing.

With regard to claim 3, Ng et al. further teaches the raised or lowered light amount being based on the difference between the distance at the joints of the light-emitting diode array chips and the resolution pitch (col. 9, lines 5-15).

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-7 have been considered but are moot in view of the new grounds of rejection as presented in this Office action.

***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai C. Pham whose telephone number is (571) 272-2260. The examiner can normally be reached on M-F 8:30AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David L. Talbott can be reached on (571) 272-1934. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



HAI PHAM  
PRIMARY EXAMINER  
December 5, 2005